

## **Repeatability and reliability of *in vitro* digestibility using Daisy fermenter and donkey faeces as inoculum**

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### **Abstract**

Studies on *in vitro* digestibility in donkeys are currently lacking. The objectives of this study were to evaluate the repeatability and reliability of the method for determining *in vitro* digestibility in donkey, utilizing the Daisy<sup>II</sup> Incubator and donkey faeces as source of microbial *inoculum*, and to test digestibility at various incubation times. Four female donkeys were used as donors for faeces. Seven feedstuffs commonly used in donkey diets were used to test the method: alfalfa, bromegrass, ryegrass and timothy hays; wheat bran and wheat straw; barley grains. Two bags of each feedstuff were incubated in the digestion jars of the Daisy<sup>II</sup> Incubator with a buffer/faecal solution (90:10); incubations were carried out every 7 days for four consecutive weeks. *In vitro* true dry matter digestibility and neutral detergent fiber digestibility were evaluated at four incubation times: 30, 48, 60 and 72 h. Data were analysed by the PROC MIXED procedure considering all feeds together and the incubation time effects as repeated measures. The repeatability and reliability of the method were average 2% for dry matter true digestibility. Less repeatable and reliable was neutral detergent fiber digestibility (average 8%). The results showed a significant increasing trend of digestibility over incubation time.

It can be concluded that the *in vitro* measurement of digestibility using donkey faeces as source of microbial *inoculum* and Daisy<sup>II</sup> Incubator as instrument is reliable and repeatable, and that the values of *in vitro* true dry matter and neutral detergent fiber digestibility increase significantly from 30 to 72 hours. Further studies are necessary to compare this methodology to *in vivo* digestibility, to define the adequate time of incubation.

**Key words:** Daisy<sup>II</sup> Incubator, donkey faecal *inoculum*, *Equus asinus* L., incubation time, *in vitro* digestibility, repeatability and reliability.