Effect of incubation medium nitrogen content on gas production and prediction of organic matter digestibility of grass silage

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Introduction

Effect of incubation medium nitrogen (N) content on *in vitro* gas production dynamics and prediction of *in vivo* organic matter digestibility of grass silage was studied

Material and methods

Samples
24 samples of known *in vivo* OMD (IVOMD)
Mean IVOMD= 665 g Kg^{-1} Range = 324 g Kg^{-1}
Addition of buffer and rumen liquor (1:4 v/v)
Measurement at the end of each series: pH and absorbance

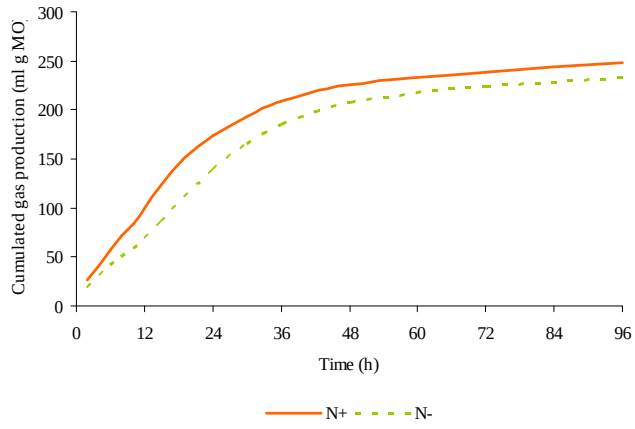
Rumen liquor
4 rumen fistulated dry Latxa sheep
Rumen contents taken before feeding
Rumen fluid was composited

Measurement of gas production
Using a pressure transducer
Readings: 2, 4, 6, 8, 10, 12, 15, 19, 24, 30, 36, 48, 72 and 96 h
Gas production profiles determined in two different weeks
Cumulated gas production fitted to: $G=A(1+B^c/t^c)^{-1}$

Statistics
Gas production parameters analysed using the GLM procedures of SAS
Stepwise regression between IVOMD and corrected (N^+) and non corrected (N^-) gas production parameters

Results and conclusions

Gas production



✔ **Medium N content did not significantly modify the asymptotic gas production (A_g) but significantly reduced time to reach half asymptotic gas production (B_g).**

✔ **Improved IVOMD predictions were achieved with the N supplemented medium.**

Stepwise multiple regression

	Intercept	A_g	B_g	c_g	r^2	rsd
N supplemented medium (N^+)	475,7	0,85	-15,99	155,79	0,758	43,21
N unsupplemented medium (N^-)	942,61		-12,25		0,519	58,09

✔ **Exogenous N should be added to the incubation medium of grass silage in order to allow an optimal microbial growth**