

Article Dans Une Revue Animal Feed Science and Technology Année : 2013

Fichier non déposé

Dates et versions

hal-02652744, [version 1](#) (29-05-2020)

Identifiants

HAL Id : hal-02652744, version 1
 DOI : [10.1016/j.anifeedsci.2013.03.008](https://doi.org/10.1016/j.anifeedsci.2013.03.008)
 PRODINRA : [208287](#)
 WOS : 000320415900002

Methionine analogues HMB and HMBi increase the abundance of cellulolytic bacterial representatives in the rumen of cattle with no direct effects on fibre degradation

[Cécile Martin](#) (1) , [C. Mirande](#) (2) , [Diego Morgavi](#) (1) , [Evelyne Forano](#) (3) , [E. Devillard](#) (2) , [Pascale Mosoni](#) (3)

[Afficher plus de détails](#)


- [UMRH - Unité Mixte de Recherche sur les Herbivores - UMR 1213](#)
- [Adisseo France SAS](#)
- [MIC - Unité de Microbiologie](#)

Citer

Cécile Martin, C. Mirande, Diego Morgavi, Evelyne Forano, E. Devillard, et al.. Methionine analogues HMB and HMBi increase the abundance of cellulolytic bacterial representatives in the rumen of cattle with no direct effects on fibre degradation. *Animal Feed Science and Technology*, 2013, 182 (1-4), pp.16 - 24. [10.1016/j.anifeedsci.2013.03.008](https://doi.org/10.1016/j.anifeedsci.2013.03.008). hal-02652744.

Résumé en

Supplementation of diets for ruminants with methionine analogues such as 2-hydroxy-4-(methylthio) butanoic acid (HMB) and its isopropyl ester (HMBi) positively affect milk composition and yield, potentially partly through ruminal actions. Our objective was to investigate effects of HMB and HMBi on the rumen microbial ecosystem, with special emphasis on fibrolytic activities and fibrolytic microorganisms. Six ruminally cannulated Holstein dry cows were randomly assigned to three treatments in a 3 x 3 Latin square design with two cows per cell. Cows were fed twice a day at 7.5 kg/d dry matter (DM) intake with a control diet based on hay and wheat (50150 on a DM basis) supplemented or not with HMB (Rhodimet (R) AT88, Adisseo at 1.25 g/kg DM intake) or HMBi (MetaSmart (TM), Adisseo, at 2.50 g/kg DM intake). Substrate degradability (i.e., corn grain, corn silage) was evaluated by in sacco incubation and effective degradability measurements of DM, crude protein, starch and neutral detergent fibre. Fermentation products (i.e., volatile fatty acids (VFAs), ammonia, lactate) and fibrolytic enzyme activities (i.e., carboxymethylcellulase (CMCase), xylanase) were analyzed in rumen content samples before (-1 h) and after (+3 h) feeding. Protozoal populations were counted by microscopy. Abundances in total and fibrolytic bacteria *Fibrobacter succinogenes*, *Ruminococcus flavefaciens* and *Ruminococcus albus* in total rumen contents or adhering to in sacco residues were estimated using quantitative polymerase-chain reaction (qPCR). HMB and HMBi supplementation increased VFA concentrations in the rumen as well as the ruminal abundance of *F. succinogenes* (P=0.03) and *R. flavefaciens* (P=0.05), although these increases had no effect on the CMCase and xylanase activities of the rumen contents, nor on in sacco bacterial colonization and degradation of the two corn substrates. Under our experimental conditions, Met analogues enhanced growth of two cellulolytic bacterial representatives, but did not improve rumen fibrolytic activity. (C) 2013 Elsevier B.V. All rights reserved.

Exporter

BibTeX XML-TEI

Dublin Core

DC Terms

EndNote

DataCite

Mots clés en [fr](#)

Methionine analogues Ruminal fermentation Fibrolytic activities Fibrolytic bacteria
 LACTATING DAIRY-COWS HYDROXY ANALOG AMINO-ACIDS BLOOD-SERUM MILK
 DEGRADABILITY SUPPLEMENTATION REQUIREMENTS

Domaines

Sciences du Vivant [q-bio] Informatique [cs] Sciences de l'Homme et Société

Collections

INRA INRAE

UMRH PHASE

[Liste complète des métadonnées](#)

511 | 0
 Consultations | Téléchargements

[Migration ProdInra : Connectez-vous pour contacter le contributeur](#)
<https://hal.inrae.fr/hal-02652744>

Soumis le : vendredi 29 mai 2020-20:08:45

Dernière modification le : mardi 26 septembre 2023-17:13:23

Altmetric

Partager



Contact

Support

Ressources

Documentation

FAQ

API

OAI-PMH

AuréHAL

Informations

À propos

Données personnelles

Mentions légales

Accessibilité

Conformité RGAA

Questions juridiques

Je publie, quels sont mes
droits ?

Loi pour une République
numérique

Stratégie de non-cession des
droits
SHERPA/RoMEO

Portails

Portails institutionnels

HAL

HAL SHS

HAL Thèses

MédiHAL

CCSD

CCSD

Episciences

Sciencesconf