



(51) International Patent Classification:

A23K 1/16 (2006.01) A23K 1/18 (2006.01)
A23K 1/17 (2006.01)

(21) International Application Number:

PCT/EP2012/059826

(22) International Filing Date:

25 May 2012 (25.05.2012)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

11167748.0 26 May 2011 (26.05.2011) EP

(71) Applicant (for all designated States except US): **DSM IP ASSETS B.V.**; Het Overloon 1, NL-6411 The Heerlen (NL).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **DUVAL, Stephane** [FR/FR]; DSM Nutritional Products France SAS, BP 170, F-68305 Saint-Louis Cedex (FR). **IMMIG, Irmgard** [DE/DE]; DSM Nutritional Products Ltd, P.O. Box 2676, 4002 Basel (DE). **KINDERMANN, Maik** [DE/DE]; DSM Nutritional Products Ltd, P.O. Box 2676, 4002 Basel (DE). **WEBER, Gilbert** [CH/CH]; DSM Nutritional Products Ltd, P.O. Box 2676, CH-Basel 4002 (CH).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

(88) Date of publication of the international search report:

31 January 2013

(54) Title: USE OF A FEED COMPOSITION FOR REDUCING METHANE EMISSION IN RUMINANTS, AND/OR TO IMPROVE RUMINANT PERFORMANCE

(57) Abstract: The present invention relates to the field of reduction of methane emission in ruminants. Particularly, it relates to the use of a feed composition or a feed additive comprising at least one antibiotic and at least one organic molecule substituted at any position with at least one nitrooxy group for reducing the production of methane emanating from the digestive activities of ruminants, and/or to improve the ruminant performance.



INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2012/059826

A. CLASSIFICATION OF SUBJECT MATTER
INV. A23K1/16 A23K1/17 A23K1/18
ADD.
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED
Minimum documentation searched (classification system followed by classification symbols)
A23K
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO-Internal, BIOSIS, COMPENDEX, FSTA, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	ANDERSON R C ET AL: "Effects of select nitrocompounds on in vitro ruminal fermentation during conditions of limiting or excess added reductant", BIORESOURCE TECHNOLOGY, ELSEVIER BV, GB, vol. 99, no. 18, 1 December 2008 (2008-12-01), pages 8655-8661, XP024524973, ISSN: 0960-8524, DOI: 10.1016/J.BIORTECH.2008.04.064 [retrieved on 2008-06-05] page 8656, left-hand column, paragraph 4 - right-hand column, paragraph 1; figures; tables	1-18
A	WO 01/26482 A1 (DCV INC [US]) 19 April 2001 (2001-04-19) claims; examples ----- -/--	1-18

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search 22 November 2012	Date of mailing of the international search report 06/12/2012
---	--

Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Saettel, Damien
--	---

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2012/059826

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2010/072584 A1 (DSM IP ASSETS BV [NL]; DUVAL STEPHANE [FR]; IMMIG IRMGARD [CH]; DE SAI) 1 July 2010 (2010-07-01) cited in the application claims; examples	1-18
A	----- BUSQUET M ET AL: "Effect of garlic oil and four of its compounds on rumen microbial fermentation", JOURNAL OF DAIRY SCIENCE, AMERICAN DAIRY SCIENCE ASSOCIATION, US, vol. 88, 1 January 2005 (2005-01-01), pages 4393-4404, XP002568660, ISSN: 0022-0302, DOI: 10.3168/JDS.S0022-0302(05)73126-X page 4401, left-hand column, paragraph 2 - page 4403, left-hand column, paragraph 3; tables	1-18
A	----- GB 1 268 952 A (MERCK & CO INC [US]) 29 March 1972 (1972-03-29) claims 10-12; examples	1-18
A	----- EP 0 685 169 A1 (SNOW BRAND SEED CO LTD [JP]; TAKAHASHI JUNICHI [JP]) 6 December 1995 (1995-12-06) claims; examples	1-18

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/EP2012/059826

Patent document cited in search report	Publication date	Patent family member(s)	Publication date	
WO 0126482	A1	19-04-2001	AU 7874000 A	23-04-2001
			CA 2382732 A1	19-04-2001
			EP 1231844 A1	21-08-2002
			JP 2003529333 A	07-10-2003
			NZ 518372 A	31-10-2003
			WO 0126482 A1	19-04-2001

WO 2010072584	A1	01-07-2010	NONE	

GB 1268952	A	29-03-1972	CA 963311 A1	25-02-1975
			CH 565514 A5	29-08-1975
			DE 1931413 A1	06-05-1970
			DE 1966491 B2	08-06-1978
			DE 2100148 A1	16-09-1971
			FR 2011970 A1	13-03-1970
			GB 1268952 A	29-03-1972
			GB 1270229 A	12-04-1972
			GB 1270230 A	12-04-1972
			JP 50015710 B	06-06-1975
			NL 6908567 A	23-12-1969
			US 3608087 A	21-09-1971

EP 0685169	A1	06-12-1995	AU 701845 B2	04-02-1999
			AU 2044395 A	14-12-1995
			CA 2150892 A1	03-12-1995
			DE 69520304 D1	19-04-2001
			DE 69520304 T2	20-09-2001
			DK 685169 T3	14-05-2001
			EP 0685169 A1	06-12-1995
			JP 3232193 B2	26-11-2001
			JP 7322828 A	12-12-1995
			NZ 272268 A	25-06-1996
			US 5843498 A	01-12-1998
