Book of Abstracts of the 70th Annual Meeting of the European Federation of Animal Science

Book of abstracts No. 25 (2019)
Ghent, Belgium,
26-30 August 2019

Book of Abstracts of the 70th Annual Meeting of the European Federation of Animal Science

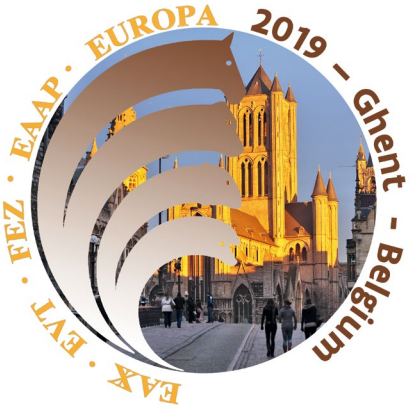
EAAP

European Federation of Animal Science

The European Federation of Animal Science wishes to express its appreciation to the
Ministero delle Politiche Agricole Alimentari e Forestali (Italy) and the
Associazione Italiana Allevatori (Italy)
for their valuable support of its activities.

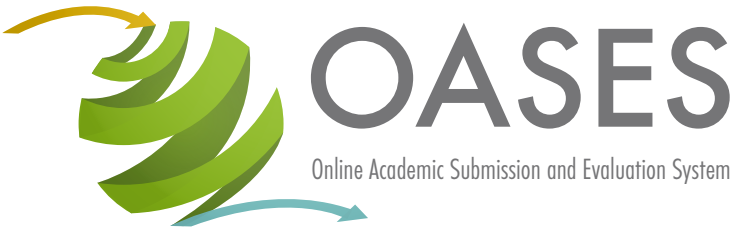
Book of Abstracts of the 70th Annual Meeting of the European Federation of Animal Science

Ghent, Belgium, 26th-30th August, 2019



EAAP Scientific Committee:

E. Strandberg
G. Savoini
H.A.M. Spoolder
H. Sauerwein
M. Lee
J.F. Hocquette
J. Conington
E.F. Knol
A.S. Santos
T. Veldkamp
I. Halachmi
G. Pollott



EAN: 9789086863396
e-EAN: 9789086868902
ISBN: 978-90-8686-339-6
e-ISBN: 978-90-8686-890-2
DOI: 10.3920/978-90-8686-890-2

ISSN 1382-6077

First published, 2019

Wageningen Academic
P u b l i s h e r s

Effect of *Cistus ladanifer* L. tannins as silage additives

M.T. Dentinho[1,2], K. Paulos[2], A.T. Belo[2], P.V. Portugal[2], S. Alves[1,3], O.C. Moreira[2], J. Santos-Silva[1,2] and R.J.B. Bessa[1,3]

[1]Centro Investigação Interdisciplinar em Sanidade Animal (CIISA), Avenida Universidade Técnica, 1300-477 Lisboa, Portugal, [2]Instituto Nacional de Investigação Agrária e Veterinária (INIAV), Fonte Boa, 2005-048 Vale de Santarém, Portugal, [3]Faculdade de Medicina Veterinária, Universidade Lisboa, Avenida da Universidade Técnica, 1300-477 Lisboa, Portugal; teresa.dentinho@iniav.pt

The effects of ensiling lucerne with *Cistus ladanifer* condensed tannins (CT) on in silo fermentative parameters and on *in vitro* organic matter digestibility (OMD) were studied. Lucerne forage was sprayed with different solutions of *C. ladanifer* CT extract in 60 ml of water to dose 0 (control), 40 (L40), 80 (L80) and 120 (L120) g of CT per kg of lucerne DM and was ensiled. The inclusion of CT in the silages caused a proteolysis reduction. Also the rumen undegradable protein increased linearly with CT inclusion (P<0.01). However, a linear decrease of 5, 13 and 22% of OMD was observed for the silages L40, L80 and L120. A level of 40 g/kg DM of CT applied to ensiling lucerne seems adequate to reduce proteolysis in silo and improve protein utilization with a slight depression in OMD. So, a metabolic trial was conducted with six crossbred Romani rams averaging 69±5 kg live weight, in three simultaneous 2×2 Latin square design. The rams were fed with Lucerne silage containing 9 l of molasses per ton, diluted in water (50:50 v/v) and treated with 0 (Control) and 40 g of *C. ladanifer* CT/kg of Lucerne DM (L40). The effect of *C. ladanifer* CT as lucerne silage additives on digestion, nitrogen balance, and nitrogen excretion was evaluated. No significant differences were observed between *in vivo* DMD and OMD between silages, that averaged 52 and 53%, respectively. The apparent digestibility of CP was lower in L40 than in control silage (64 vs 69%), but no differences in nitrogen retained by the animals were observed. The pattern of N excretion was affected by treatments, with lower urinary N and higher faecal N with L40 than in Control. The results suggest CT added to silage protect protein from ruminal degradation. The shift in N excretion from urine to faeces is environmentally beneficial since urine N can rapidly volatilized into the environment and faecal N is incorporated into soil increasing nutrient availability.

Supplementation of sheep fed low-quality *Eraggrostis curvula*: a meta-analytical study

H. Mynhardt, W.A. Van Niekerk, L.J. Erasmus, R.J. Coertse and C.J.L. Du Toit

University of Pretoria, Department of Animal Science, Hatfield, 0028, South Africa; willem.vanniekerk@up.ac.za

The objective of this study was to evaluate relative effects of supplemental starch (1.407 and 5.210 g starch/kg BW) and urea (0.186 and 0.701 g urea/kg BW) on the efficiency of N utilisation in sheep fed low-quality *Eragrostis curvula* hay (ranging between 0.4% N and 0.7% N, >65% NDF) using meta-analytical methods. The dataset used was compiled from four supplementation studies and six trials, totalling 123 data points, using linear mixed model meta-analysis (REML analysis). Prior to meta-analysis, the discriminating variables were evaluated using canonical variate analysis (GenStat®). The relative importance of starch and/or urea supplementation were determined using Akaike's information criterion, as well as the R-square of the adjusted models. Neither starch nor urea supplementation had an effect on NDF intake or digestibility (P>0.05). However, starch supplementation influenced the microbial N supply (MNS) model the most, with MNS increasing linearly as starch supplementation was increased (P<0.05, R^2=0.602). In contrast, rumen ammonia N concentration (RAN) and the ratio between MNS and N intake (NI) models were best described by urea supplementation. As such the MNS: NI ratio decreased curvilinearly as urea supplementation was increased (P<0.05, R^2=0.402), while RAN increased linearly as urea supplementation was increased (P<0.05, R^2=0.585). In addition, a relationship was established between RAN and the starch supplemented to available crude protein (CP) intake ratio (P<0.05, R^2=0.761), where available CP intake was calculated from CP intake from urea and forage intake – acid digestible insoluble CP intake. Sheep fed low-quality *E. curvula* hay needed to be supplemented with at least 2.2 g starch/kg BW/day to fulfil maintenance N requirements through MNS. Based on MNS: NI ratios, the minimum quantity of urea needed to be supplemented to sheep in this meta-analysis was 0.5 g urea/kg BW. In addition, the relationship between RAN and starch: available CP ratio suggested that the optimal ratio of starch supplemented and available CP needed to be at least 2:1.