CZECH ACADEMY OF AGRICULTURAL SCIENCES

Czech Journal of Animal Science
Slezská 100/7
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Czech Journal of Animal Science
INSTRUCTIONS FOR AUTHORS

GENERAL INFORMATION

Czech Journal of Animal Science publishes original research articles and invited review articles related to the scientific sections of genetics and breeding, physiology, reproduction, nutrition and feeds, technology, ethology, and economics of cattle, pig, sheep, goat, poultry, fish, bee, and other farm animal management. Papers are published in English. The authors are fully responsible for originality of the paper, its subject and formal correctness.

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Biegelmeyer P, Gulias-Gomes CC. Linkage disequilibrium, persistence of phase and effective population size estimates in Hereford and Braford cattle. BMC Genet. 2016 Feb;17(1):1-12.

Clark EL, Bush SJ, McCulloch MEB, Farquhar IL, Young R, Lefevre L, Pridans C, Tsang HG, Wu C, Afrasiabi C, Watson M, Whitelaw CB, Freeman TC, Summers KM, Archibald AL, Hume DA. A high resolution atlas of gene expression in the domestic sheep (Ovis aries). PLoS Genet. 2017 Sep 15;13(9): 38 p.

- Journal article in a language other than English:

Berrino F, Gatta G, Crosignani P. Valutazione casi-controlli dell'efficacia dello screening [Case-control evaluation of screening efficacy]. Epidemiol Prev. 2004 Nov;28(6):354-9. Italian.

- In press article:

Bhutta ZA, Darmstadt GL, Hasan BS, Haws RA. Community-based interventions for improving perinatal and neonatal health outcomes in developing countries: A review of the evidence. Pediatrics. Forthcoming 2022.

- Electronic journal article:

Happell B. The influence of education on the career preferences of undergraduate nursing students. Aust Electron J Nurs Educ [Internet]. 2002 Apr [cited 2007 Jan 8];8(1): [about 12 p.]. Available from: http://www.scu.edu.au/schools/nhcp/aejne/vol8-1/refereed/happell_max.html.

- Article published electronically before print:

Walsh B, Steiner A, Pickering RM, Ward-Basu J. Economic evaluation of nurse led intermediate care versus standard care for post-acute medical patients: Cost minimisation analysis of data from a randomised controlled trial. BMJ. 2005 Mar;330(7493):1-5. Epub 2005 Mar 9.

Book:

Porter V. Goats of the world. Ipswich, UK: Farming Press; 1996. 174 p.

NRC – National Research Council. Nutrient requirements of dairy cattle. 7th ed. Washington, DC, USA: National Academies Press; 2001. 408 p.

AOAC – Association of Official Analytic Chemists. Official methods of analysis. 15th ed. Washington, DC, USA: Association of Official Analytical Chemists; 1990. 1298 p.

- Book chapter:

Poppe C. Salmonella infections in the domestic fowl. In: Wray C, Wray A, editors. Salmonella in domestic animals. Wallingford, UK: CAB International; 2000. p. 107-32.

Sharma BS, Mount J, Karrow NA. Functional characterization of a single nucleotide polymorphism in the 5'-UTR region of the bovine toll-like receptor 4 gene. In: Pinard MH, Gay C, Pastoret PP, Dodet B, editors. Animal genomics for animal health, Book series: Developments in biologicals, 132. Basel, Switzerland: Karger Publishers; 2008. p. 331-6.

Other:

Treacher RJ, Hunt CW. Recent developments in feed enzymes for ruminant rations. Proceedings of the Pacific Northwest Animal Nutrition Conference; 1996 Aug 37-54; Seattle, USA. Seattle: ISP Press; 1996. 99 p.

Burnett EA. The influence of farmer stress and hardiness on adoption of best management practices in the Maumee watershed [dissertation]. [Columbus (OH)]: Ohio State University; 2014. 271 p.

Orchard JW, Alcott E, James T, Farhart P, Portus M, Waugh SR. Exact moment of a gastrocnemius muscle strain captured on video. Br J Sports Med. 2002 Jun;36(3):222-3. Accompanied by: Video available at http://www.bjsportmed.com.

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Revised: March 22, 2024

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ABBREVIATIONS, UNITS AND TERMS

The following abbreviations should be explained when used for the first time, units and terms may be used without definition in the Czech Journal of Animal Science:

List of recommended abbreviations

AA = amino acid
ACTH = adrenocorticotropin
ADF = acid detergent fibre
ADFI = average daily feed intake
ADG = average daily gain
ADL = acid detergent lignin
AI = artificial insemination
AME = apparent metabolisable energy
AMEn = nitrogen-corrected apparent metabolisable energy
AMP, ADP, ATP = adenosine mono-, di-, or triphosphate
ANOVA = analysis of variance
ATPase = adenosine triphosphatase
BCS = body condition score
BLUP = best linear unbiased predictor
BSA = bovine serum albumin
BTA = *Bos taurus* autosome
BUN = blood urea nitrogen
BW = body weight
cDNA = complementary deoxyribonucleic acid
CF = crude fibre
CI = confidence interval
CLA = conjugated linoleic acid
CoA = coenzyme A
CP = crude protein
CV = coefficient of variation
DE = digestible energy
df = degrees of freedom
DIM = days in milk
DM = dry matter
DMI = dry matter intake
DNA = deoxyribonucleic acid
DNase = deoxyribonuclease
dNTP = deoxynucleotide triphosphates
DP = digestible protein
EAA = essential amino acid
EBV = estimated breeding value
EDTA = ethylenediaminotetraacetate
EE = ether extract
ELISA = enzyme-linked immunosorbent assay
FA = fatty acid
FAME = fatty acid methyl esters
FCR = feed conversion ratio
FSH = follicle-stimulating hormone
GAPDH = glyceraldehyde 3-phosphate dehydrogenase
GC = gas chromatography
GE = gross energy
GH = growth hormone
GHRH = growth hormone-releasing hormone
G : F = gain-to-feed ratio
GLC = gas-liquid chromatography
GLM = general linear model
GnRH = gonadotropin-releasing hormone
h^2 = heritability
HEPES = *N*-2-hydroxyethyl piperazine-N'-ethanesulfonic acid
HPLC = high-performance (pressure) liquid chromatography
IFN = interferon
Ig = immunoglobulin
IGF = insulin-like growth factor
IL = interleukin
L : D = hours light : hours darkness in a photoperiod
L*a*b* = lightness, redness, yellowness
LH = luteinizing hormone
LPS = lipopolysaccharide
LSD = least significant difference
LSM = least squares means
MALDI-TOF = matrix-assisted laser desorption/ionization time-of-flight
MAS = marker-assisted selection
ME = metabolisable energy
MIC = minimum inhibitory concentration
MP = metabolisable protein
mRNA = messenger ribonucleic acid
MS = mass spectrometry
MUFA = monounsaturated fatty acids
MUN = milk urea nitrogen
n = number of samples
ND = below detection limit, not detected
NDF = neutral detergent fibre
NE = net energy
NEAA = nonessential amino acid

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NEFA = nonesterified fatty acid
NEG = net energy for gain
NEL = net energy for lactation
NEM = net energy for maintenance
NFC = nonfibre carbohydrates
NPN = nonprotein nitrogen
NRC = National Research Council
NS = nonsignificant
NSC = nonstructural carbohydrates
NSP = nonstarch polysaccharide
OM = organic matter
PAGE = polyacrylamide gel electrophoresis
PBS = phosphate-buffered saline
PCR = polymerase chain reaction
PTA = predicted transmitting ability
PUFA = polyunsaturated fatty acids
QTL = quantitative trait loci
r = correlation coefficient
R^2 = coefficient of determination
RDP = rumen-degradable protein
REML = restricted maximum likelihood
RFLP = restriction fragment length polymorphism
RIA = radioimmunoassay
RNA = ribonucleic acid
RNase = ribonuclease
rRNA = ribosomal ribonucleic acid
RSD = residual standard deviation
RUP = rumen-undegradable protein
SCC = somatic cell count
SCFA = short-chain fatty acid
SCS = somatic cell score
SD = standard deviation
SDS = sodium dodecyl sulfate
SE = standard error
SEM = standard error of the mean
SFA = saturated fatty acids
SNF = solids-not-fat
SNP = single nucleotide polymorphism
SPC = standard plate count
TBA = thiobarbituric acid
TDN = total digestible nutrients
TMR = total mixed ration
Tris = tris(hydroxymethyl)aminomethane
TS = total solids
UFA = unsaturated fatty acids
UHT = ultra-high temperature
UV = ultraviolet
VFA = volatile fatty acids

Amino acids

Ala = alanine
Arg = arginine
Asn = asparagine
Asp = aspartic acid
Cit = citrulline
Cys = cysteine
Glu = glutamic acid
Gln = glutamine
Gly = glycine
His = histidine
Ile = isoleucine
Leu = leucine
Lys = lysine
Met = methionine
Orn = ornithine
Phe = phenylalanine
Pro = proline
Ser = serine
Thr = threonine
Trp = tryptophan
Tyr = tyrosine
Val = valine

Units and terms

base pair … bp
calorie (gram) … cal
celsius (with number) …°C
centimetre … cm
centimetre, square … cm^2
centimorgan … cM
colony-forming unit … cfu
counts per minute … cpm
counts per second … cps
cubic centimetre … cm^3
cubic millimetre … mm^3
deci … d (prefix)
decilitre … dl
lux … lx
gram … g
gravity … *g*

hectare …ha
hour … h
inside diameter … i.d.
international unit … IU
intramuscularly … i.m.
intraperitoneally … i.p.
intravenously … i.v.
joule … J
kilo … k (prefix)
kilobase … kb
kilobyte … KB
kilocalorie … kcal
kilo Dalton … kDa
kilogram … kg
litre … l
logarithm (natural) … ln
logarithm (base 10) … $\log_{10}$
lux … lx
mega … M (prefix)
metre … m
metric tonne … t
micro … µ (prefix)
microgram … µg
microlitre … µl
milli … m (prefix)
millilitre … ml
millimolar (concentration) … mM (= mmol/l)
millimole (mass) … mmol
minute(s) … min
molar (concentration) … M
molar (mass) … mol
mole (number, mass) … mol
nano … n (prefix)
nanogram … ng
probability … *P*
revolutions per minute … rpm
second … s
species … sp.
subcutaneous … s.c.
subspecies … ssp.
volume … vol
volume/volume … vol/vol (use parenthetically)
weight/volume … wt/vol (use parenthetically)

TABLE AND FIGURE EXAMPLES

Table 1. Ingredients and chemical composition of the diets[1]

Ingredient (g/kg)	Diet without alfalfa	Diet with alfalfa
Wheat	310	300
Maize	251.2	253.5
Soybean meal	265	250
Dried alfalfa	0	40
Rapeseed oil	40	40
Monocalcium phosphate	10.3	10
Sodium chloride	3	3
L-Lysine hydrochloride	2	2
DL-Methionine	1.5	1.5
Vitamin-mineral premix[2]	5	5
Analysed nutrient content (g/kg)		
Dry matter	888.5	892.6
AME_N by calculation (MJ/kg)	10.97	10.46
Crude protein	162.5	164.1
Calcium	35.6	35.9
Available phosphorus	3.6	3.4

[1]Other experimental diets were supplemented with 100 mg/kg or 200 mg/kg ascorbic acid

[2]Vitamin-mineral premix provided per kg diet: retinylacetate 3.0 mg, vitamin D3 3 000 IU, vitamin E 30 mg, niacin 25 mg, Ca pantothenate 8 mg, thiamine 2.0 mg, riboflavin 5 mg, pyridoxine 4 mg, folic acid 0.5 mg, biotin 0.075 mg, cobalamin 0.01 mg, choline Cl 250 mg, menadione 2.0 mg, betain 100 mg, butylated hydroxytoluene 7.5 mg, ethoxyquin 5.6 mg, butylhydroxyanisole 1 mg, DL-methionine 0.7 g, Mn 70 mg, Zn 50 mg, Fe 40 mg, Cu 6 mg, I 1 mg, Co 0.3 mg, Se 0.2 mg

Table 2. Pearson's correlation coefficients between selected laying performance, external and internal egg quality measurements

	Hen-day egg production	Feed intake	Egg weight	Eggshell weight	Shell strength	Shell thickness	Albumen weight
Feed intake	–0.06						
Egg weight	0.02	–0.08					
Eggshell weight	–0.09	–0.06	0.63***				
Shell strength	–0.07	0.09	–0.05*	0.37***			
Shell thickness	–0.05	–0.04	0.03	0.14***	0.10***		
Albumen weight	0.05	–0.02	0.92***	0.52***	–0.05*	0.02	
Yolk weight	–0.02	–0.16	0.73***	0.41***	–0.015***	0.01	0.43***

Significant at *($P < 0.05$), ***($P < 0.001$)

Table 3. Physical characteristics of breast meat

Characteristic	I	FRI	FRII	SEM	*P*
pH_{45}	6.6	6.4	6.6	0.06	NS
pH_{24}	5.6^{b}	5.9^{a}	5.7^{ab}	0.04	0.043
Colour of raw meat					
Lightness	55.6	56.0	53.6	0.71	NS
Redness	–2.0	–2.7	–2.8	0.16	NS
Yellowness	4.0	4.2	3.6	0.46	NS
Shear force of boiled meat (N)	34.2^{a}	29.2^{b}	27.1^{b}	0.82	0.003

FRI = free-range 8.30 chickens per m^2; FRII = free-range 4.15 chickens per m^2; I = indoor housing; pH_{45} = pH 45 min after slaughter; pH_{24} = pH 24 h after slaughter

^{a,b}Means with different superscripts differ significantly

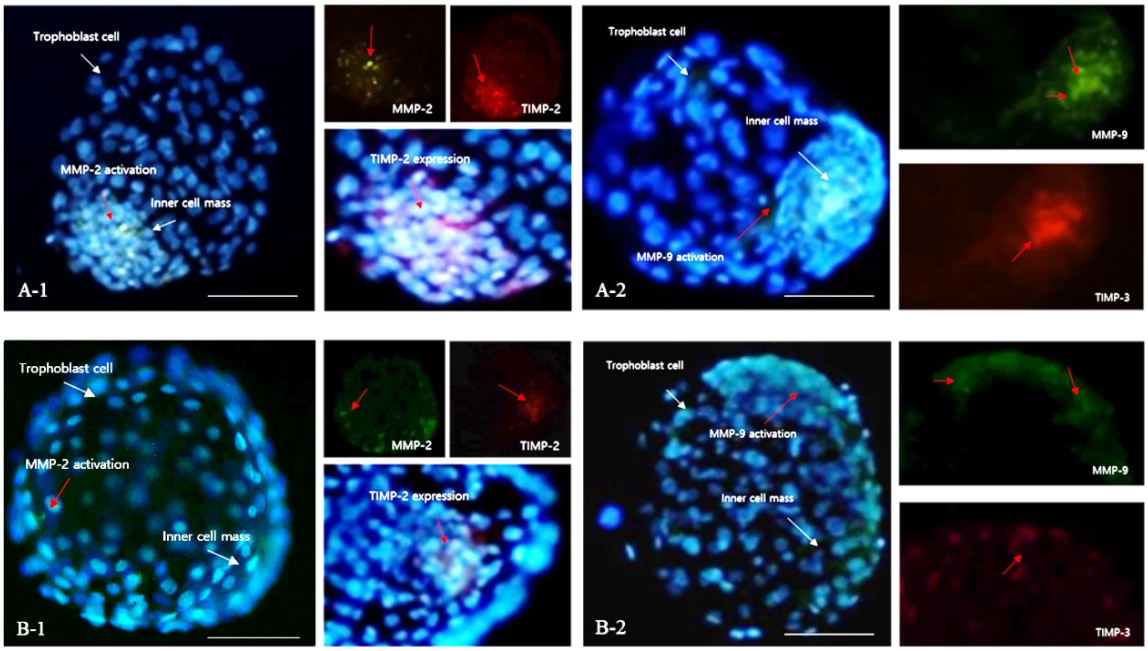

Figure 3. Expression site and surface analysis of matrix metalloproteinases (MMPs) and tissue inhibitors of metalloproteinases (TIMPs) in blastocysts produced using serum-free and serum-containing media
(A, B) immunofluorescence analysis of: (A-1) expression patterns of MMP-2 and TIMP-2 in *in vitro* fertilised embryo; (A-2) expression patterns of MMP-9 and TIMP-3 in *in vitro* fertilised embryos; (B-1) expression patterns of MMP-2 and TIMP-2 in embryos obtained using serum-free medium; (B-2) expression patterns of MMP-9 and TIMP-3 in serum-free and serum-containing culture media. The surrounding cells of the blastocyst are trophoblasts, and the aggregated cells constitute the inner cell mass. Green fluorescence shows the expression of MMPs, and red fluorescence shows the expression of TIMPs. The nuclei of embryos were stained using Hoechst 33258. Red arrows indicate the protein distribution in cells

SELF ASSESSMENT

Self-assessment questions to be answered by the authors before submission of the manuscript:
1. Is the information to be published new, and thus worthy of publication?
2. Is novelty expressed in the title and discussed properly in the discussion?
3. Is the hypothesis sound and original?
4. Were the experiments well-designed and appropriate methods used?
5. Is the paper written with essential clarity?
6. Has the English been validated by a native speaker knowledgeable about the field?
7. Is the list of references comprehensive, and are all the references relevant?
8. Where appropriate, are the results statistically significant?
9. Are the titles and legends for tables and figures complete and self-explanatory?
10. Were the Instructions for Authors thoroughly followed?

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